KENWOOD

2 METER ALL-MODE TRANSCEIVER

TR-9130

A-B-C COMMUNICATIONS
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PHOTO SHOWN IS TR-9130 IN 16 KEY AUTOPATCH UP/DOWN MICROPHONE (MC-46) VERSION.

KENWOOD

The TR-9130 is a powerful, yet compact, 25 watt FM/USB/LSB/CW transceiver providing increased versatility of operation on the 2 meter band.
In addition to the high 25 watt RF output power, the TR-9130 offers improved operating features useable in all modes, such as six memory channels with memory scan, battery memory back-up (battery not supplied), automatic band scan of one MHz band segments, all-mode squelch circuit, and CW semi break-in circuit. Micro-processor technology is used throughout.
The TR-9130 is available with a 16 key autopatch UP/DOWN microphone (MC-46), or with a basic UP/DOWN microphone.

25 WATTS RF OUTPUT POWER ON FM/SSB/CW

A newly developed high power linear module provides a clean 25 watts RF output power on FM/SSB/CW modes, for more reliable FM operation and increased DX on SSB or CW, mobile or fixed station operation.

FM, USB, LSB, CW ALL MODE OPERATION

The latest technology is incorporated for maximum efficiency and convenience in all modes of operation, including LSB for certain OSCAR mode operations.
The 5 position mode switch (FM1, FM2, USB, CW, LSB) in combination with the digital step (DS) switch determines the size (in kHz or Hz) of the tuning step, and the number of digits displayed.

SIX MEMORIES

In the FM1, or FM2 modes of operation, memories 1 through 5 may be operated simplex or ± 600 kHz offset through use of the OFFSET switch, permitting access to most repeaters. Memory 6 may be programmed to store the receive and transmit frequencies independently, allowing operation on repeaters with non-standard split frequencies.
All six memories may be operated simplex, any mode.

INTERNAL BATTERY MEMORY BACK-UP (BATTERY NOT SUPPLIED)

Frequency data stored in the memories will be retained as long as the transceiver remains connected to an un-switched 13.8 V DC source. In the TR-9130, provision is made for the addition of an internal 9 volt type Ni-Cd battery (Not KENWOOD supplied). With the battery installed (and charged) the transceiver may be disconnected from one power source for relocation to another without loss of memory. The charge on the Ni-Cd battery is automatically maintained as long as the transceiver is connected to a 13.8 V DC source. A fully charged battery will provide effective memory back-up approximately 24 hours, adequate for the typical move from the base location to the mobile.
Provision is made on the rear panel for connection of a separate external memory back-up power source, such as the optional TK-1 AC back-up supply.

MEMORY SCAN

Depressing the MS switch initiates the scanning of only those memory channels in which data has been stored. Scanning stops and locks on busy channels, resumes when the signal disappears, or when the SCAN switch is depressed.

① **MEMORY SELECTOR SWITCH**
M1 — M5...for simplex or ± 600 kHz repeater offset; M6 for non-standard offset (memorizes transmit and receive frequencies independently).
② **RF GAIN AND RIT CONTROLS**
Outside knob is RF Gain, and inside knob is RIT.
③ **DIGITAL DISPLAY**
Number of digits is determined by the positions of the MODE and DS switches.
④ **SCAN SWITCH**
Allows automatic busy stop scanning.
⑤ **S & RF METER**
"S" meter on receive and RF power output meter on transmit.
⑥ **"BEEPER"**
Beeps when memory store switch or microphone UP/DOWN buttons are pressed. Also beeps if out-of-band offset frequency is selected.
⑦ **HOLD SWITCH**
Stops scanning function.
⑧ **TONE SWITCH**
Activates tone device (not KENWOOD supplied).
⑨ **TX OFFSET**
Shifts transmit frequency for repeater.
⑩ **MICROPHONE INPUT**
⑪ **MEMORY SCAN SWITCH**
Initiates scan of memory channels in which data is stored.
⑫ **MEMORY RECALL SWITCH**
Activates memory recall of selected channels.
⑬ **16-BUTTON AUTOPATCH UP/DOWN MICROPHONE**
⑭ **UP SWITCH**
Manual up scanning.
⑮ **DOWN SWITCH**
Manual down scanning.
⑯ **MAIN DIAL**
Shifts digital VFO in frequency steps (100 Hz, 5 kHz, 10 kHz) determined by the position of the MODE and DS switches.
⑰ **DIGITAL STEP SWITCH**
Selects the frequency step of the digital VFO and the number of digits in the display.
⑱ **HI/LOW POWER SWITCH**
Choice of 25 or 5 watts RF output on FM or CW.
⑲ **SQUELCH CONTROL**
⑳ **REVERSE SWITCH**
Permits TX/RX frequency reversal.
㉑ **VOLUME, ON/OFF SWITCH**
Power switch and volume control.
㉒ **RIT SWITCH**
Activates RIT circuit.
㉓ **A/B SWITCH**
Selects dual digital VFO's A or B, allowing rapid frequency change to preselected frequency.
㉔ **MODE SWITCH**
㉕ **NOISE BLANKER SWITCH**
Activates noise blanker circuit.
㉖ **MEMORY STORE SWITCH**

Scanning may also be stopped by pressing the HOLD switch. Releasing the MS switch cancels the scan function.

AUTOMATIC BAND SCAN (1 MHz SEGMENTS)

Scans selected 1 MHz segment (143.900 — 143.999 MHz, 144.000 — 144.999, 145.000 — 145.999 etc., through 148.000 — 148.999 MHz). Automatically locks on busy channel, resumes scanning when signal disappears, or when SCAN switch is pressed. Depressing HOLD button stops scanning action.

FREQUENCY STEPS AND DISPLAY

MODE switch	D.STEP switch	Tuning steps	Display digits	
FM1	OFF	10 kHz	3 digits (5.21)	FM tu band)
	ON	5 kHz	4 digits (5.210)	Most
FM2	OFF	5 kHz	4 digits (6.625)	Most
	ON	1 kHz	4 digits (6.625)	Frequ
USB CW LSB	OFF	100 Hz	5 digits (4.200.0)	SSB/
	ON	5 kHz	4 digits (4.200)	Fast

NOTE: When in "Memory Recall" mode, 5 digits are displayed.

When transceiver is in either BAND scan or MEMORY scan, the decimal point will flash on and off, even when scan has stopped on a busy channel.
In each mode the scan step size is determined by the position of the mode switch and the Digital Step switch. When operating in the CW or SSB modes, with the Digital Step switch OFF (out), a 1 kHz scan step is provided for scanning efficiency.
Fine tuning, using the tuning knob or the UP/DOWN buttons on the microphone can then be easily accomplished following scan hold.

16 KEY AUTOPATCH UP/DOWN MICROPHONE VERSION

The TR-9130 is available with the MC-46 16 key autopatch UP/DOWN microphone, or with the basic UP/DOWN microphone.
Manual UP/DOWN scan of the entire band is possible using either microphone, an added convenience during mobile operations. Scan step size is determined by the positions of the mode switch and the digital step switch.

SQUELCH CIRCUIT ON ALL MODES (FM/SSB/CW)

The squelch circuit is effective on SSB and CW, as well as on FM. Useful when watching club or net frequencies.

REPEATER REVERSE SWITCH

Depressing the REV switch causes the transmit and receive frequencies to be transposed. Useful for checking signals on the repeater input for quality and to determine if the station is within simplex range.
Can also be used to re-establish contact with the other station in the event of repeater failure or time out, or for determining if a repeater is upside down.

TONE SWITCH

A front panel switch is provided for use in activating a tone device, such as CTCSS (not KENWOOD supplied), as may be required for accessing certain repeaters.

TUNING TRANSMIT FREQUENCY FOR OSCAR OPERATIONS

OSCAR operations in the SSB or CW mode are facilitated by use of the tuning knob or UP/DOWN buttons on the microphone to adjust the transmit frequency in 100 Hz increments.

BUILT-IN CW SEMI BREAK-IN WITH SIDE TONE

For convenience in CW operations, the TR-9130 features a built-in CW semi break-in circuit. A side tone circuit is also incorporated.

DIGITAL DISPLAY WITH GREEN LED'S

Up to 5 digits may be displayed, depending on the position of the mode switch and the digital step switch.
The larger the tuning step size, the fewer the digits displayed. Use of green LED's reduces eye fatigue and improves readability.

DUAL DIGITAL VFO'S

The TR-9130 incorporates two built-in digital VFO's which may be selected through use of the A/B switch, and individually tuned, permitting speedy changes from one end of the band to the other.

HIGH PERFORMANCE RECEIVE -TRANSMIT CHARACTERISTICS

The use of a low-noise dual-gate MOS FET plus two monolithic crystal filters in the receiver front-end results in excellent two signal characteristics. Extra care in transmitter design assures especially clean signals in all modes of operation.

COMPACT DESIGN AND LIGHT WEIGHT

A masterpiece of state-of-the-art engineering, the TR-9130 incorporates the most wanted features in a 2 meter, all mode transceiver with 25 watts RF output, yet at no sacrifice in compactness or weight.

EXTENDED FREQUENCY RANGE

The TR-9130 covers the entire 2 meter amateur band, plus the MARS and CAP frequencies falling between 143.9000 MHz and 148.9999 MHz.

TRANSMIT OFFSET SWITCH

A conveniently located front panel switch permits easy offset of the transmit frequency ±600 kHz for FM operation on standard repeater split frequencies. Non-standard split frequencies may be accommodated through programming on Memory 6. Should the operator inadvertently select an offset frequency that would fall outside the band, a "beep" will sound, and the transceiver will automatically switch to simplex operation.

HIGH PERFORMANCE NOISE BLANKER

The built-in high quality noise blanker is effective in suppressing pulse-type noise (such as automotive ignition noise) in the SSB and CW modes.

RF GAIN CONTROL

RF Gain may be controlled in all modes of operation.
The use of a threshold type control in the design of the transceiver enables accurate "S" meter readings on SSB and CW modes.

RIT CIRCUIT

An RIT (Receiver Incremental Tuning) control allows the receiver to be tuned slightly off frequency in the SSB or CW modes.

AGC TIME CONSTANT AUTOMATICALLY SELECTED

The amplified-type AGC circuit enhances SSB and CW reception. The AGC time constant is automatically selected with the mode switch.

HI/LOW POWER SWITCH

In the FM and CW modes, the operator may select either 25 watts, or 5 watts (approximately) RF output, using the front panel HI/LOW power switch.

ACCESSORY TERMINAL (REAR PANEL)

A four pin accessory terminal (ALC, ST-BY, 9V Transmit, Ground) is provided on the rear panel for convenience in connecting the TR-9130 for use with a linear amplifier, or other accessories.

PIEZOELECTRIC BEEPER

A built-in piezoelectric signalling device "beeps" to announce activation of the memory programming button, selection of an OFFSET frequency outside the band, or activation of the microphone UP/DOWN buttons.

VISUAL INDICATORS

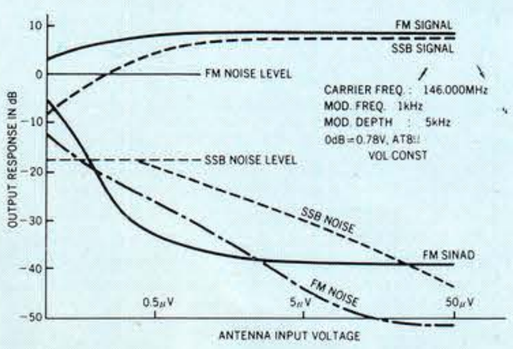
Front Panel LED function indicators are provided to show channel is busy, when transmitting, and when RIT or Memory Recall buttons are depressed.

QUICK RELEASE MOUNTING BRACKET

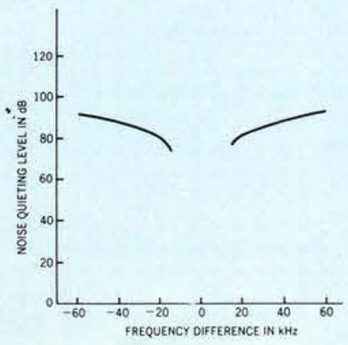
A quick release mounting bracket is provided to facilitate removal of the unit from its mobile installation, and to allow easy adjustment of the mounting angle in vehicular installations.

Application
ing (repeater sub-
All mode fast tuning
FM tuning
FM tuning
ncy compensation
W tuning
ning for SSB/CW

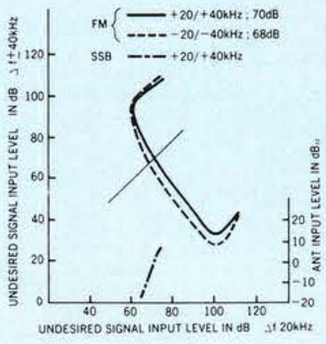
SENSITIVITY



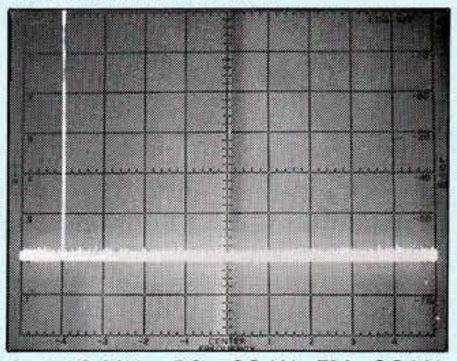
SENSITIVITY SUPPRESSION CHARACTERISTICS (FM)



CROSS-MODULATION CHARACTERISTICS (FM, USB)

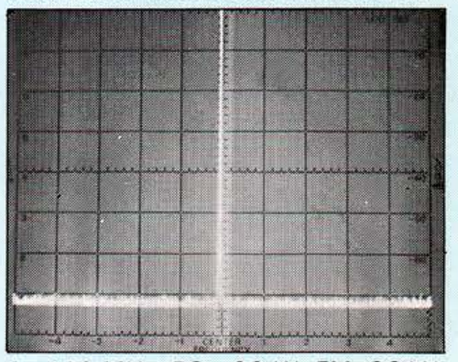

FM +20/+40kHz ; 70dB
-20/-40kHz ; 68dB
SSB +20/+40kHz
UNDESIRED SIGNAL INPUT LEVEL IN dB
ANT INPUT LEVEL IN dBμ
UNDESIRED SIGNAL INPUT LEVEL IN dB

HARMONIC EMISSIONS



f = 146 MHz PO = 28 W FM SCAN WIDTH: 50 MHz/ DIV. BAND WIDTH: 100 kHz VIDEO FILTER: 10 kHz ATT: 30 dB

ADJACENT SPURIOUS EMISSIONS



f = 146 MHz PO = 28 W FM SCAN WIDTH: 5MHz/DIV. BAND WIDTH: 3 kHz/DIV. VIDEO FILTER: 10 kHz ATT: 30 dB

KENWOOD

TR-9130 (Basic UP/DOWN Microphone Type)

OPTIONAL ACCESSORIES

KPS-7
DC POWER SUPPLY

Supplies regulated 13.8 V DC at 6 A continuous, 7 A intermittent load with large heat sink and protection circuit.

SP-120
EXTERNAL SPEAKER

The SP-120 is a good looking compact speaker matching the TR-9130 styling and is designed for fixed station use. A low distortion speaker unit provides clear reproduction.

TK-1
AC ADAPTOR (W09-0008-05)

This AC adaptor is used as a memory back-up power supply when the main power supply is off for extended periods.

MC-46
16-BUTTON AUTOPATCH UP/DOWN MICROPHONE

The MC-46 is an autopatch microphone. It features a 16 key autopatch encoder and frequency UP and DOWN switches.

SP-40
COMPACT MOBILE SPEAKER

Very small, high-quality mobile speaker, which can be mounted virtually anywhere. A ferrite magnet built into the mounting bracket holds the speaker to any ferrous metal surface, or to the adhesive-backed steel plate supplied.

TR-9130 SPECIFICATIONS

[GENERAL]

Frequency Range:	144.000.0 ~ 147.999.9 MHz
Mode:	F3(FM), A3J(SSB), A1(CW)
Frequency Stability:	Within ±500 Hz during the first hour after 1 minute of warmup. Within ±50 Hz any 30 minutes.
Power Requirement:	13.8 V DC ±15%
Grounding:	Negative
Operating Temperature:	−20°C ~ +60°C
Current Drain:	0.7 A in receive mode with no input signal 5.5 A in HI transmit mode 2.7 A in LOW transmit mode Less than 3.0 mA for memory back-up
RF Output Impedance:	50 Ω
Dimensions:	170(6.8)W × 68(2.7)H × 241(9.6)D mm(inch)
Weight:	Approx. 2.4 kg (5.3 lbs.)

[TRANSMITTER]

RF Output Power:	HI (FM, SSB, CW) = 25 W LOW (FM, CW) = Approx. 5 W
Modulation:	FM = Reactance Direct Shift SSB = Balanced Modulation
Frequency Tolerance:	FM = Less than $\pm 20 \times 10^{-6}$ SSB = Less than $\pm 10 \times 10^{-6}$
Spurious Radiation:	HI = Less than −60 dB LOW = Less than −53 dB
Carrier Suppression:	Better than 40 dB
Unwanted Side Band Suppression:	Better than 40 dB
Maximum Frequency Deviation (FM):	±5 kHz
Microphone:	UP/DOWN Dynamic Microphone with PTT switch, 500 Ω

[RECEIVER]

Circuitry:	FM = Double Conversion Superheterodyne SSB, CW = Single Conversion Superheterodyne
Intermediate Frequency:	1st IF = 10.695 MHz (FM, SSB, CW) 2nd IF = 455 kHz (FM)
Sensitivity:	FM = Better than 0.25 μV for 12 dB SINAD Better than 1 μV for 35 dB S/N SSB, CW = Better than 0.25 μV for 10 dB S/N
Selectivity:	FM = More than 12 kHz (−6 dB) Less than 24 kHz (−60 dB) SSB, CW = More than 2.2 kHz (−6 dB) Less than 4.8 kHz (−60 dB)
Spurious Radiation:	Better than 70 dB
Squelch Sensitivity (FM, SSB, CW):	Less than 0.16 μV (threshold)
Auto Scan Stop Level:	Less than 0.2 μV
Audio Output Power:	More than 2.0 W (10% distortion, 8 Ω loading)

Note: Circuit and ratings may change without notice due to developments in technology.

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